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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,473	02/05/2004	George Bokisa	TASKP103US	4978

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EXAMINER

WONG, EDNA

ART UNIT PAPER NUMBER

1753

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,473

Applicant(s)

BOKISA ET AL.

Examiner

Edna Wong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13,15,23,24 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13,15,23,24 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This is in response to the Amendment dated October 19, 2006. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Claim Rejections - 35 USC § 103

I. Claims **1-8 and 23** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **JP 10-245693** ('693) and **Passal** (US Patent No. 3,697,391).

The rejection of claims 1-8 and 23 under 35 U.S.C. 103(a) as being unpatentable over JP 63-239848 ('848) in combination with JP 10-245693 ('693) and Passal has been withdrawn in view of Applicants' amendment.

II. Claims **9-12, 15 and 24** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 63-239848** ('848) in combination with **JP 10-245693** ('693) and **Passal** (US Patent No. 3,697,391).

The rejection of claims 9-12, 15 and 24 under 35 U.S.C. 103(a) as being unpatentable over JP 63-239848 ('848) in combination with JP 10-245693 ('693) and Passal has been withdrawn in view of Applicants' amendment.

III. Claim **13** has been rejected under 35 U.S.C. 103(a) as being unpatentable over

JP 63-239848 ('848) in combination with **JP 10-245693** ('693) and **Passal** (US Patent No. 3,697,391) as applied to claims 9-12 and 24 above, and further in view of **SU 1,544,847** ('847).

The rejection of claim 13 under 35 U.S.C. 103(a) as being unpatentable over JP 63-239848 ('848) in combination with JP 10-245693 ('693) and Passal as applied to claims 9-12 and 24 above, and further in view of SU 1,544,847 ('847) has been withdrawn in view of Applicants' amendment.

Response to Amendment

Claim Objections

Claims **4 and 6** objected to because of the following informalities:

Claim 4

line 5, it appears that the "at least one acetylenic brightener" is the same as the at least one acetylenic brightener recited in claim 1, lines 5-6.

If it is, then it is suggested that the word -- the -- be inserted after the word "of".

If it is not, then what is the relationship between the at least one acetylenic brighteners?

Claim 6

lines 12-13, it appears that the "at least one acetylenic brightener" is the same as the at least one acetylenic brightener recited in claim 1, lines 5-6. However, it is unclear

if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "and".

If it is not, then what is the relationship between the at least one acetylenic brighteners?

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims **6 and 28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6

lines 10-12, it appears that "an amine-borane compound selected from the group consisting of dimethylamine borane, t-butylamine borane, and hydrates thereof" is the as the amine-borane compound selected from the group consisting of dimethylamine borane, t-butylamine borane, and hydrates thereof recited in claim 1, lines 4-5.

However, it is unclear if it is.

If it is, then it is suggested that the word "an" be amended to the word -- the --.

If it is not, then what is the relationship between the amine-borane compounds?

Claim 28

lines 4-5, it appears that the "at least one acetylenic brightener" is the same as the at least one acetylenic brightener recited in claim 26, lines 5-6. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "of".

If it is not, then what is the relationship between the at least one acetylenic brighteners?

Claim Rejections - 35 USC § 103

I. Claims **1-8 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) in combination with **Passal** (US Patent No. 3,697,391).

JP '693 teaches a method of electroplating an alloy comprising nickel, cobalt and boron comprising:

(a) providing an electroplating bath comprising:

(i) an anode (= from carrying out electroplating) [page 5, claim 2];

(ii) a cathode (= from carrying out electroplating) [page 5, claim 2];

(iii) water (= from water-soluble) [page 1, [0007]];

(iv) ionic nickel (= from a water-soluble salt of Ni) [page 1, [0007]]; and

abstract];

(v) ionic cobalt (= from a water-soluble salt of Co);

(vi) an amine-borane compound selected from the group consisting of

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dimethylamine borane, t-butylamine borane, and hydrates thereof (= dimethylamineborane, 74-94-2) [abstract]; and

(v) at least one brightener (= a quaternary ammonium salt brightener)

[page 1, [0007]; and abstract]; and

(b) applying a current (page 4, Table 2) to the electroplating bath whereby the alloy comprising nickel, cobalt and boron forms on the cathode (= nickel alloy) [page 1, [0007]; and abstract].

The electroplating bath has a pH from about 2 to about 6 (= pH 3-10) [page 1, [0007]; and page 3, Table 1] and a temperature from about 10°C to about 90°C (page 3, Table 1); and a current density of about 1 ASF or more and about 500 ASF or less is applied to the electroplating bath (page 4, Table 2).

The electroplating bath is provided by combining water (= from water-soluble) [page 1, [0007]], nickel sulfate (10043-35-3), cobalt sulfate (13770-89-3), and dimethylamine borane (74-94-2) [abstract] and at least one brightener (= a quaternary ammonium salt brightener) [page 1, [0007]].

The nickel cobalt boron alloy comprises about 2% by weight or less of components other than nickel, cobalt and boron (= and optional water-soluble salt of B, Co, Cu, Fe, Mn, P, Sn and/or Zn) [abstract].

The electroplating bath comprises from about 0.001% to about 5% by weight of the brightener (= 0.01-0.5 g/l = 0.001-0.05%) [page 2, [0015]].

The method of JP '693 differs from the instant invention because JP '693 does not disclose the following:

- a. Wherein the electroplating bath comprises at least one acetylenic brightener, as recited in claim 1.
- b. Wherein the acetylenic brightener is selected from the group consisting of acetylenic alcohols, acetylenic amines, acetylenic esters, acetylenic sulfonic acids and sulfonates, alkoxyated acetylenic alcohols, and acetylenic carboxylic acids, as recited in claim 3.
- c. Wherein the acetylenic brightener is selected from the group consisting of ethoxylated butynediol; 2-butyne-1,4-diol; propargyl alcohol; ethoxylated propargyl alcohol; hydroxyethyl propynyl ether; beta-hydroxypropyl, propynyl ether; gamma-propynyloxy, bis-beta-hydroxyethyl ether 2-butyne-1,4-diol; bis-beta-hydroxypropyl ether 2-butyne-1,4-diol; 1,4-di-(beta-hydroxyethoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-chloropropoxy)-2-butyne; 1,4-di-(beta-gamma-epoxypropoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-butenoxy)-2-butyne; 1,4-di-(2'-hydroxy-4'-oxa-6'-heptenoxy)-2-butyne; 2,4,6-trimethyl N-propargyl pyridinium bromide; 2-methyl-3-butyne-2-ol; 1-(beta-hydroxyethoxy)-2-butyne; and 1-(beta-hydroxypropoxy)-2-butyne, as recited in claim 23.

Like JP '693, Passal teaches pyridinium salt brighteners (col. 3, lines 8-9) in a nickel-cobalt alloy electroplating bath (col. 11, Example 8). Passal adds effective amounts of at least one member selected from the group of cooperating additives

consisting of:

- (a) a primary brightener;
- (b) a secondary brightener;
- (c) a second auxiliary brightener, and
- (d) an anti-pitting agent (col. 2, lines 41-47)

to typical nickel-containing, cobalt-containing and nickel-cobalt-containing bath compositions (col. 6, lines 30-38; and cols. 11-12, Example 8).

Examples of a primary brightener are 2,4,6-trimethyl N-propargyl pyridinium bromide, 2-butyne-1,4-diol, propargyl alcohol and 2-methyl-3-butyn-2-ol (col. 3, lines 3-31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the brightener described by JP '693 with wherein the brightener is at least one acetylenic brightener because substituting the pyridinium salt brightener with an acetylenic brightener would have been functionally equivalent as taught by Passal (col. 3, lines 3-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the electroplating bath described by JP '693 with wherein the electroplating bath comprises at least one acetylenic brightener because on adding such brighteners to the electroplating bath, a brilliant, well-leveled, quite ductile deposit was obtained which had low current density coverage as taught by Passal (cols. 11-12, Example 8).

d. Wherein the electroplating bath further comprises at least one sulfur containing brightener selected from the group consisting of sulfinic acids, sulfonic acids, aromatic sulfonates, aromatic sulfinates, sulfonamides, sulfonimides, sulfimides, and sulfo-betaines, as recited in claim 2.

Passal teaches that examples of a secondary brightener are aromatic sulfonates, sulfoamides, sulfonimides and sulfinates (col. 3, lines 32-41).

Passal teaches that such plating additives compounds, which may be used singly or in suitable combinations, have one of more of the following functions:

(1) To obtain semi-lustrous deposits or to produce substantial grain-refinement over the usual dull, matter, grainy, non-reflective deposits from additive free baths.

(2) To act as ductilizing agents when used in combination with other additives such as primary brighteners.

(3) To control internal stress of deposits, generally by making the stress desirably compressive.

(4) To introduce controlled sulfur contents into the electrodeposits to desirably affect chemical reactivity, potential differences in composite coating systems, etc. thereby decreasing corrosion, better protecting the basis metal from corrosion, etc. (col. 3, lines 42-56; and col. 4, lines 2-22).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the electroplating bath described by JP '693 with

wherein the electroplating bath further comprises at least one sulfur containing brightener selected from the group consisting of sulfinic acids, sulfonic acids, aromatic sulfonates, aromatic sulfinates, sulfonamides, sulfonimides, sulfimides, and sulfo-betaines because such plating additive compounds used in suitable combinations would have had one of more of the above functions (1) to (4) as taught by Passal (col. 3, lines 42-56).

e. Wherein the electroplating bath comprises about 40 g/l or more and about 100 g/l or less of ionic nickel; about 1 g/l or more and about 30 g/l or less of ionic cobalt; and about 0.2 g/l or more and about 10 g/l or less of the amine-borane compound, as recited in claim 4.

The bath disclosed by JP '693 inherently has an ionic nickel concentration, an ionic cobalt concentration, and an amine-borane compound concentration.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the ionic nickel, ionic cobalt and amine-borane compound concentrations described by JP '693 with wherein the electroplating bath comprises about 40 g/l or more and about 100 g/l or less of ionic nickel; about 1 g/l or more and about 30 g/l or less of ionic cobalt; about 0.2 g/l or more and about 10 g/l or less of the amine-borane compound because it has been held that changes in temperature, concentration or both, is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and

unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

f. Wherein the anode comprises at least one of nickel, cobalt, boron, iridium oxide, platinum, titanium, graphite, carbon and platinum-titanium, as recited in claim 7.

The electroplating disclosed by JP '693 inherently uses an anode.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the anode described by JP '693 with wherein the anode comprises at least one of nickel, cobalt, boron, iridium oxide, platinum, titanium, graphite, carbon and platinum-titanium because Passal teaches using an anode comprised of nickel for electroplating a nickel-cobalt alloy (cols. 11-12, Example 8).

Furthermore, it is common in the electroplating art to have used electrodes made of the same material that was being deposited.

II. Claims **9-12, 15 and 24** are rejected under 35 U.S.C. 103(a) as being

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unpatentable over **JP 10-245693** ('693) in combination with **Passal** (US Patent No. 3,697,391).

JP '693 and Passal are as applied for reasons as discussed above and incorporated herein.

JP '693 also teaches wherein the electroplating bath further comprises at least one organic brightener selected from the group consisting of ethylenic alcohols, coumarins, aldehydes, compounds containing a C≡N linkage and heterocyclics (= a heterocyclic quaternary ammonium compound as a brightener) [page 1, [007]; and abstract].

III. Claim **13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) in combination with **Passal** (US Patent No. 3,697,391) as applied to claims 9-12, 15 and 24 above, and further in view of **SU 1,544,847** ('847).

JP '693 and Passal are as applied above and incorporated herein.

The method of JP '693 differs from the instant invention because JP '693 does not disclose wherein the sulfur-containing brightener is a sulfo-betaine brightener, as recited in claim 13.

SU '847 teaches that the addition of a betaine of 2-(4-pyridyl) ethanesulfonic acid increases the hardness of a nickel or nickel-cobalt alloy coating (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the sulfur-containing brightener described by

Passal with wherein the sulfur-containing brightener is a sulfo-betaine brightener because the addition of a betaine of 2-(4-pyridyl) ethanesulfonic acid would have increased the hardness of a nickel or nickel-cobalt alloy coating as taught by SU '847 (abstract).

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

IV. Claims **26-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) in combination with **Passal** (US Patent No. 3,697,391).

JP '693 and Passal are as applied for reasons as discussed above and incorporated herein.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE**

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

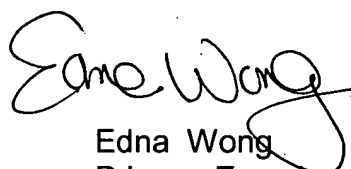
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Edna Wong
Primary Examiner
Art Unit 1753

EW
December 9, 2006